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Pioneer Hi-Bred International, Inc.

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         35                  40                  45

Gly Arg Thr Ile Gly Glu Gly Thr Phe Ala Lys Val Lys Phe Ala Gln
     50                  55                  60

Asn Thr Glu Thr Gly Glu Ser Val Ala Met Lys Val Leu Asp Arg Ser
 65                  70                  75                  80

Ser Ile Leu Lys Asn Lys Met Ala Glu Gln Ile Lys Arg Glu Ile Ser
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Ile Met Lys Leu Val Arg His Pro Asn Val Val Arg Leu His Glu Val
            100                 105                 110

Leu Ala Ser Arg Lys Lys Ile Phe Ile Ile Leu Glu Phe Ile Thr Gly
        115                 120                 125

Gly Glu Leu Phe Asp Lys Ile Ile Arg His Gly Arg Leu Ser Glu Ala
    130                 135                 140

Asp Ala Arg Arg Tyr Phe Gln Gln Leu Ile Asp Gly Val Asp Phe Cys
145                 150                 155                 160

His Lys Lys Gly Val Tyr His Arg Asp Leu Lys Pro Glu Asn Leu Leu
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Leu Asp Ser Gln Gly Asn Leu Lys Ile Ser Asp Phe Gly Leu Ser Ala
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Trp Pro Ala Gln Gly Ser Phe Leu Leu Arg Thr Thr Cys Gly Thr Pro
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Asn Tyr Val Ala Pro Glu Val Leu Ser His Lys Gly Tyr Asn Gly Ala
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Gly Tyr Leu Pro Phe Asp Glu Val Asp Leu Thr Thr Leu Tyr Gly Lys
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Ile Glu Ser Ala Glu Tyr Ser Phe Pro Ala Trp Phe Ser Gly Gly Ala
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Lys Ser Leu Ile Arg Arg Ile Leu Asp Pro Asn Pro Glu Thr Arg Ile
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Arg Ile Glu Glu Ile Arg Ser Asp Glu Trp Phe Gln Lys Asn Tyr Glu
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Pro Ile Lys Glu Ile Glu Asn Glu Glu Val Asn Leu Asp Asp Val Asn
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Gln Gly Leu Asn Leu Ala Ala Leu Phe Asp Arg Arg Gln Asp Cys Asp
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Lys Leu Gln Asn Arg Phe Leu Ser Arg Asn Pro Ala Lys Val Ile Leu
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Ser Ser Met Glu Val Val Ala Gln Ser Met Gly Phe Lys Thr His Ile
385                 390                 395                 400

Arg Asn Tyr Lys Met Arg Val Glu Gly Leu Asn Ala Asp Lys Thr Ser
                  405                 410                 415

His Leu Ser Val Met Val Glu Val Phe Glu Val Ala Pro Ser Ile Phe
              420                 425                 430

Met Val Glu Leu Gln Arg Ala Ala Gly Asp Thr Ser Glu Tyr Asn Thr
          435                 440                 445

Phe Val Asn Asn Tyr Cys Gly Lys Leu Asp Asp Ile Ile Trp Lys Phe
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<213> Zea mays

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Ile Ala Glu His Lys Leu Thr Gly His Arg Val Ala Ile Lys Ile Ile
         35                  40                  45

Asn Cys Arg Gln Met Arg Asn Met Glu Met Glu Glu Lys Ala Lys Arg
     50                  55                  60

Glu Phe Lys Ile Leu Lys Leu Phe Ile His Pro His Ile Ile Arg Leu
 65                  70                  75                  80

Tyr Glu Val Ile Tyr Thr Pro Thr Asp Ile Tyr Val Val Met Glu Tyr
                 85                  90                  95

Cys Lys Tyr Gly Glu Leu Phe Asp Tyr Ile Val Glu Lys Gly Arg Leu
            100                 105                 110

Gln Glu Asp Glu Ala Arg Arg Ile Phe Gln Gln Ile Ile Ser Gly Val
        115                 120                 125

Glu Tyr Cys His Arg Asn Met Val Val His Arg Asp Leu Lys Pro Glu
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Asn Leu Leu Leu Asp Ser Lys Tyr Asn Val Lys Leu Ala Asp Phe Gly
145                 150                 155                 160

Leu Ser Asn Val Met His Asp Gly His Phe Leu Lys Thr Ser Cys Gly
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Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile Ser Gly Lys Leu Tyr Ala
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Gly Pro Glu Val Asp Val Trp Ser Cys Gly Val Ile Leu Tyr Ala Leu
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Lys Lys Ile Lys Gly Gly Ile Tyr Thr Leu Pro Ser His Leu Ser Ala
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Leu Pro Arg Tyr Leu Ala Val Pro Pro Pro Asp Thr Thr Gln Gln Ala
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Lys Met Ile Asp Glu Asp Thr Leu Arg Asp Val Val Asn Met Gly Phe
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Asn Lys Asn His Val Cys Glu Ser Leu Cys Ser Arg Leu Gln Asn Glu
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Ala Thr Val Ala Tyr Tyr Leu Leu Leu Asp Asn Arg Phe Arg Ala Thr
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340 345 350

Asn Gln Leu Ala Ser Ser Glu Ser Ser Ser Ser Gly Thr Arg Asn Tyr
355 360 365

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370 375 380

Pro Val Glu Arg Lys Trp Ala Leu Gly Leu Gln Ser Arg Ala His Pro
385 390 395 400

Arg Glu Ile Met Val Glu Val Leu Lys Ala Leu Gln Glu Leu Asn Val
405 410 415

Arg Trp Lys Lys Asn Gly His Tyr Asn Val Lys Cys Arg Trp Cys Pro
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Gly Phe Pro Glu Val Asn Asp Thr Leu Asp Ala Ser Asn Ser Phe Leu
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Gly Asp Ser Thr Ile Met Asp Asn Asp Asp Ala Asn Gly Arg Leu Pro
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Thr Val Ile Lys Phe Glu Phe Gln Leu Tyr Lys Thr Lys Asp Asp Lys
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Thr Ser Ser Pro Gly Leu Ala Ala Ala Ala Cys Ser Gly Gly Arg Asp
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Gly His Lys Val Ala Ile Lys Ile Leu Asn Arg Lys Lys Ile Arg Ser
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Met Asp Met Glu Glu Lys Val Lys Arg Glu Ile Lys Ile Leu Arg Leu
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Phe Met His Pro His Ile Ile Arg Leu Tyr Glu Val Ile Asp Thr Pro
145                 150                 155                 160

Ala Asp Ile Cys Val Val Met Glu Tyr Val Lys Ser Gly Glu Leu Phe
                165                 170                 175

Asp Tyr Ile Val Glu Lys Gly Arg Leu His Glu Glu Glu Ala Arg His
            180                 185                 190

Phe Phe Gln Gln Ile Ile Ser Gly Val Glu Tyr Cys His Arg Asn Met
        195                 200                 205

Val Ala His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Asp Ser Lys
    210                 215                 220

Cys Asn Val Lys Ile Ala Asp Phe Gly Leu Ser Asn Ile Met Arg Asp
225                 230                 235                 240

Gly His Phe Leu Lys Thr Ser Cys Gly Ser Pro Asn Tyr Ala Ala Pro
                245                 250                 255

Glu Val Ile Ser Gly Lys Leu Tyr Ala Gly Pro Glu Val Asp Val Trp
            260                 265                 270

Ser Cys Gly Val Ile Leu Tyr Ala Leu Leu Cys Gly Thr Leu Pro Phe
        275                 280                 285

Asp Asp Glu Asn Ile Pro Asn Leu Phe Lys Lys Ile Lys Gly Gly Ile
    290                 295                 300

Tyr Thr Leu Pro Ser His Leu Ser Pro Ser Ala Arg Asp Leu Ile Pro
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Arg Met Leu Val Val Asp Pro Met Lys Arg Ile Thr Ile Arg Glu Ile
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Arg Glu His Val Trp Phe Lys Ile Arg Leu Pro Arg Tyr Leu Ala Val
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Pro Pro Pro Asp Thr Ala Gln Gln Val Lys Lys Val Asp Glu Glu Thr
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Leu Asn Asp Val Ile Lys Met Gly Phe Asp Lys Asn Gln Leu Ile Glu
    370                 375                 380
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Leu Leu Asp Asn Arg Leu Arg Thr Thr Ser Gly Tyr Leu Gly Ser Glu
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Phe Gln Glu Ser Met Asp Ser Ser Leu Ser Gln Val Ile Ala Glu Thr
            420                 425                 430

Pro Thr Ser Ala Thr Glu Leu Arg Gln His Gly Phe Ser Glu Ser Pro
        435                 440                 445

Gly Ser Gly Leu Arg Gln His Phe Ala Ala Glu Arg Lys Trp Ala Leu
    450                 455                 460

Gly Leu Gln Ser Arg Ala His Pro Arg Glu Ile Ile Ser Glu Val Leu
465                 470                 475                 480

Lys Ala Leu Gln Glu Leu Asn Val Tyr Trp Lys Lys Ile Gly His Tyr
                485                 490                 495

Asn Met Lys Cys Arg Trp Ser Pro Gly Cys Leu Glu Ser Met Met His
            500                 505                 510

Asn Ser Asp Ser Phe Ser Ala Glu Ser Ala Ile Ile Glu Thr Asp Val
        515                 520                 525

Phe Met Glu Lys Ser Thr Pro Thr Val Lys Phe Glu Ile Gln Leu Tyr
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Lys Thr Arg Asp Glu Lys Tyr Leu Leu Asp Leu Gln Arg Val Ser Gly
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<210> 10
<211> 422
<212> PRT
<213> Glycine max

<400> 10

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Met Asn Ser Glu Arg Gln Ser Thr Thr Thr Thr Leu Leu His Gly Lys
  1               5                  10                  15

Tyr Glu Leu Gly Arg Val Leu Gly His Gly Ser Phe Ala Lys Val Tyr
             20                  25                  30

His Ala Arg Asn Leu Lys Thr Gly Gln His Val Ala Met Lys Val Val
         35                  40                  45

Gly Lys Glu Lys Val Ile Lys Val Gly Met Met Glu Gln Val Lys Arg
     50                  55                  60

Glu Ile Ser Val Met Lys Met Val Lys His Pro Asn Ile Val Glu Leu
 65                  70                  75                  80

His Glu Val Met Ala Ser Lys Ser Lys Ile Tyr Ile Ser Ile Glu Leu
                 85                  90                  95

Val Arg Gly Gly Glu Leu Phe Asn Lys Val Ser Lys Gly Arg Leu Lys
            100                 105                 110

Glu Asp Leu Ala Arg Leu Tyr Phe Gln Gln Leu Ile Ser Ala Val Asp
        115                 120                 125

Phe Cys His Ser Arg Gly Val Tyr His Arg Asp Leu Lys Pro Glu Asn
    130                 135                 140

Leu Leu Leu Asp Glu His Gly Asn Leu Lys Val Ser Asp Phe Gly Leu
145                 150                 155                 160

Thr Ala Phe Ser Asp His Leu Lys Glu Asp Gly Leu Leu His Thr Thr
                165                 170                 175
```

Cys Gly Thr Pro Ala Tyr Val Ser Pro Glu Val Ile Ala Lys Lys Gly
180 185 190

Tyr Asp Gly Ala Lys Ala Asp Ile Trp Ser Cys Gly Val Ile Leu Tyr
195 200 205

Val Leu Leu Ala Gly Phe Leu Pro Phe Gln Asp Asp Asn Leu Val Ala
210 215 220

Met Tyr Lys Lys Ile His Arg Gly Asp Phe Lys Cys Pro Pro Trp Phe
225 230 235 240

Ser Leu Asp Ala Arg Lys Leu Val Thr Lys Leu Leu Asp Pro Asn Pro
245 250 255

Asn Thr Arg Ile Ser Ile Ser Lys Val Met Glu Ser Ser Trp Phe Lys
260 265 270

Lys Gln Val Pro Arg Lys Val Glu Glu Val Val Glu Lys Val Asp Leu
275 280 285

Glu Glu Lys Ile Glu Asn Gln Glu Thr Met Asn Ala Phe His Ile Ile
290 295 300

Ser Leu Ser Glu Gly Phe Asn Leu Ser Pro Leu Phe Glu Glu Lys Arg
305 310 315 320

Lys Glu Glu Met Arg Phe Ala Thr Ala Gly Thr Pro Ser Ser Val Ile
325 330 335

Ser Arg Leu Glu Glu Val Ala Lys Ala Gly Lys Phe Asp Val Lys Ser
340 345 350

Ser Glu Thr Lys Val Arg Leu Gln Gly Gln Glu Arg Gly Arg Lys Gly
355 360 365

Lys Leu Ala Ile Ala Ala Asp Ile Tyr Ala Val Thr Pro Ser Phe Met
370 375 380

Val Val Glu Val Lys Lys Asp Asn Gly Asp Thr Leu Glu Tyr Asn Gln
385 390 395 400

Phe Cys Ser Lys Gln Leu Arg Pro Ala Leu Lys Asp Ile Phe Trp Asn
405 410 415

Ser Ala Pro Ala Ser Ala
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<211> 2123
<212> DNA
<213> Glycine max

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aattgggaaa aacactcggg attggatctt ttggcaaggt gaaaattgca gaacatgtgt 240
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<210> 12
<211> 514
<212> PRT
<213> Glycine max

<400> 12

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Met Asp Gly Pro Ala Gly Arg Gly Gly Ala Gly Leu Asp Met Phe Leu
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Pro Asn Tyr Lys Leu Gly Lys Thr Leu Gly Ile Gly Ser Phe Gly Lys
             20                  25                  30

Val Lys Ile Ala Glu His Val Leu Thr Gly His Lys Val Ala Ile Lys
         35                  40                  45

Ile Leu Asn Arg Arg Lys Ile Lys Asn Met Glu Met Glu Glu Lys Val
     50                  55                  60

Arg Arg Glu Ile Lys Ile Leu Arg Leu Phe Met His Pro His Ile Ile
 65                  70                  75                  80

Arg Leu Tyr Glu Val Ile Glu Thr Pro Thr Asp Ile Tyr Val Val Met
                 85                  90                  95

Glu Tyr Val Lys Ser Gly Glu Leu Phe Asp Tyr Ile Val Glu Lys Gly
            100                 105                 110

Arg Leu Gln Glu Asp Glu Ala Arg Asn Phe Phe Gln Gln Ile Ile Ser
        115                 120                 125
```

```
Gly Val Glu Tyr Cys His Arg Asn Met Val Val His Arg Asp Leu Lys
    130                 135                 140

Pro Glu Asn Leu Leu Leu Asp Ser Lys Cys Asn Val Lys Ile Ala Asp
145                 150                 155                 160

Phe Gly Leu Ser Asn Ile Met Arg Asp Gly His Phe Leu Lys Thr Ser
                165                 170                 175

Cys Gly Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile Ser Gly Lys Leu
            180                 185                 190

Tyr Ala Gly Pro Glu Val Asp Val Trp Ser Cys Gly Val Ile Leu Tyr
        195                 200                 205

Ala Leu Leu Cys Gly Thr Leu Pro Phe Asp Asp Glu Asn Ile Pro Asn
    210                 215                 220

Leu Phe Lys Lys Ile Lys Gly Gly Ile Tyr Thr Leu Pro Ser His Leu
225                 230                 235                 240

Ser Pro Gly Ala Arg Asp Leu Ile Pro Gly Met Leu Val Val Asp Pro
                245                 250                 255

Met Arg Arg Met Thr Ile Pro Glu Ile Arg Gln His Pro Trp Phe Gln
            260                 265                 270

Ala Arg Leu Pro Arg Tyr Leu Ala Val Pro Pro Pro Asp Thr Met Gln
        275                 280                 285

Gln Ala Lys Lys Ile Asp Glu Glu Ile Leu Gln Glu Val Val Lys Met
    290                 295                 300

Gly Phe Asp Arg Asn Gln Leu Val Glu Ser Leu Gly Asn Arg Ile Gln
305                 310                 315                 320

Asn Glu Gly Thr Val Ala Tyr Tyr Leu Leu Leu Asp Asn Arg Phe Arg
                325                 330                 335

Val Ser Ser Gly Tyr Leu Gly Ala Glu Phe Gln Glu Thr Met Asp Ser
            340                 345                 350

Gly Phe Asn Gln Met His Ser Ser Glu Leu Ala Ser Ser Val Val Gly
        355                 360                 365

Asn Arg Phe Pro Gly Tyr Met Glu Tyr Pro Gly Val Gly Ser Arg Gln
    370                 375                 380

Gln Phe Pro Val Glu Arg Lys Trp Ala Leu Gly Leu Gln Ser Arg Ala
385                 390                 395                 400

His Pro Arg Glu Ile Met Thr Glu Val Leu Lys Ala Leu Gln Glu Leu
                405                 410                 415

Asn Val Cys Trp Lys Lys Ile Gly His Tyr Asn Met Lys Cys Arg Trp
            420                 425                 430

Val Ala Gly Ile Pro Gly His His Glu Gly Met Val Asn Asn Asn Val
        435                 440                 445
```

```
His Ser Asn His Tyr Phe Gly Asp Asp Ser Asn Ile Ile Glu Asn Asp
    450                 455                 460

Ala Val Ser Thr Ser Asn Val Val Lys Phe Glu Val Gln Leu Tyr Lys
465                 470                 475                 480

Thr Arg Glu Glu Lys Tyr Leu Leu Asp Leu Gln Arg Val Gln Gly Pro
                485                 490                 495

Gln Phe Leu Phe Leu Asp Leu Cys Ala Ala Phe Leu Ala Gln Leu Arg
            500                 505                 510

Val Leu
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<210> 13
<211> 2040
<212> DNA
<213> Glycine max

<400> 13

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<210> 14
<211> 438

<212> PRT
<213> Glycine max

<400> 14

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Met Gly Glu Lys Ser Asn Val Gly Gly Asp Ala Ile Asn Thr Thr Leu
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Leu His Gly Lys Tyr Glu Leu Gly Arg Leu Leu Gly His Gly Thr Phe
             20                  25                  30

Ala Lys Val Tyr His Ala Arg His Leu Lys Thr Gly Lys Ser Val Ala
         35                  40                  45

Met Lys Val Val Gly Lys Glu Lys Val Val Lys Val Gly Met Met Glu
     50                  55                  60

Gln Ile Lys Arg Glu Ile Ser Ala Met Asn Met Val Lys His Pro Asn
 65                  70                  75                  80

Ile Val Gln Leu His Glu Val Met Ala Ser Lys Ser Lys Ile Tyr Ile
                 85                  90                  95

Ala Met Glu Leu Val Arg Gly Gly Glu Leu Phe Asn Lys Ile Ala Arg
            100                 105                 110

Gly Arg Leu Arg Glu Glu Met Ala Arg Leu Tyr Phe Gln Gln Leu Ile
        115                 120                 125

Ser Ala Val Asp Phe Cys His Ser Arg Gly Val Tyr His Arg Asp Leu
    130                 135                 140

Lys Pro Glu Asn Leu Leu Leu Asp Asp Asp Gly Asn Leu Lys Val Thr
145                 150                 155                 160

Asp Phe Gly Leu Ser Thr Phe Ser Glu His Leu Arg His Asp Gly Leu
                165                 170                 175

Leu His Thr Thr Cys Gly Thr Pro Ala Tyr Val Ala Pro Glu Val Ile
            180                 185                 190

Gly Lys Arg Gly Tyr Asp Gly Ala Lys Ala Asp Ile Trp Ser Cys Gly
        195                 200                 205

Val Ile Leu Tyr Val Leu Leu Ala Gly Phe Leu Pro Phe Gln Asp Asp
    210                 215                 220

Asn Leu Val Ala Leu Tyr Lys Lys Ile Tyr Arg Gly Asp Phe Lys Cys
225                 230                 235                 240

Pro Pro Trp Phe Ser Ser Glu Ala Arg Arg Leu Ile Thr Lys Leu Leu
                245                 250                 255

Asp Pro Asn Pro Asn Thr Arg Ile Thr Ile Ser Lys Ile Met Asp Ser
            260                 265                 270

Ser Trp Phe Lys Lys Pro Val Pro Lys Asn Leu Met Gly Lys Lys Arg
        275                 280                 285

Glu Glu Leu Asp Leu Glu Glu Lys Ile Lys Gln His Glu Gln Glu Val
    290                 295                 300
```

```
Ser Thr Thr Met Asn Ala Phe His Ile Ile Ser Leu Ser Glu Gly Phe
305                 310                 315                 320

Asp Leu Ser Pro Leu Phe Glu Glu Lys Lys Arg Glu Glu Lys Glu Leu
                325                 330                 335

Arg Phe Ala Thr Thr Arg Pro Ala Ser Ser Val Ile Ser Arg Leu Glu
            340                 345                 350

Asp Leu Ala Lys Ala Val Lys Phe Asp Val Lys Lys Ser Glu Thr Lys
        355                 360                 365

Val Arg Leu Gln Gly Gln Glu Lys Gly Arg Lys Gly Lys Leu Ala Ile
    370                 375                 380

Ala Ala Asp Leu Tyr Ala Val Thr Pro Ser Phe Leu Val Val Glu Val
385                 390                 395                 400

Lys Lys Asp Asn Gly Asp Thr Leu Glu Tyr Asn Gln Phe Cys Ser Lys
                405                 410                 415

Glu Leu Arg Pro Ala Leu Lys Asp Ile Val Trp Arg Thr Ser Pro Ala
            420                 425                 430

Glu Asn Pro Thr Leu Ala
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<210> 15
<211> 2543
<212> DNA
<213> Glycine max

<400> 15

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<210> 16
<211> 515
<212> PRT
<213> Glycine max

<400> 16

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Leu Arg Asn Tyr Lys Leu Gly Lys Thr Leu Gly Ile Gly Ser Phe Gly
             20                  25                  30

Lys Val Lys Ile Ala Glu His Val Arg Thr Gly His Lys Val Ala Ile
         35                  40                  45

Lys Ile Leu Asn Arg His Lys Ile Lys Asn Met Glu Met Glu Glu Lys
     50                  55                  60

Val Arg Arg Glu Ile Lys Ile Leu Arg Leu Phe Met His His His Ile
 65                  70                  75                  80

Ile Arg Leu Tyr Glu Val Val Glu Thr Pro Thr Asp Ile Tyr Val Val
                 85                  90                  95

Met Glu Tyr Val Lys Ser Gly Glu Leu Phe Asp Tyr Ile Val Glu Lys
            100                 105                 110

Gly Arg Leu Gln Glu Asp Glu Ala Arg His Phe Phe Gln Gln Ile Ile
        115                 120                 125

Ser Gly Val Glu Tyr Cys His Arg Asn Met Val Val His Arg Asp Leu
    130                 135                 140

Lys Pro Glu Asn Leu Leu Leu Asp Ser Lys Phe Asn Ile Lys Ile Ala
145                 150                 155                 160

Asp Phe Gly Leu Ser Asn Ile Met Arg Asp Gly His Phe Leu Lys Thr
                165                 170                 175

Ser Cys Gly Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile Ser Gly Lys
            180                 185                 190
```

```
Leu Tyr Ala Gly Pro Glu Val Asp Val Trp Ser Cys Gly Val Ile Leu
        195                 200                 205

Tyr Ala Leu Leu Cys Gly Thr Leu Pro Phe Asp Asp Glu Asn Ile Pro
    210                 215                 220

Asn Leu Phe Lys Lys Ile Lys Gly Gly Ile Tyr Thr Leu Pro Ser His
225                 230                 235                 240

Leu Ser Pro Gly Ala Arg Asp Leu Ile Pro Arg Met Leu Val Val Asp
                245                 250                 255

Pro Met Lys Arg Met Thr Ile Pro Glu Ile Arg Gln His Pro Trp Phe
            260                 265                 270

Gln Val His Leu Pro Arg Tyr Leu Ala Val Pro Pro Pro Asp Thr Leu
        275                 280                 285

Gln Gln Ala Lys Lys Ile Asp Glu Glu Ile Leu Gln Glu Val Val Asn
    290                 295                 300

Met Gly Phe Asp Arg Asn Gln Leu Val Glu Ser Leu Ser Asn Arg Ile
305                 310                 315                 320

Gln Asn Glu Gly Thr Val Thr Tyr Tyr Leu Leu Leu Asp Asn Arg Phe
                325                 330                 335

Arg Val Ser Ser Gly Tyr Leu Gly Ala Glu Phe Gln Glu Thr Met Asp
            340                 345                 350

Ser Gly Phe Asn Arg Met His Ser Gly Glu Val Ala Ser Pro Val Val
        355                 360                 365

Gly His His Ser Thr Gly Tyr Met Asp Tyr Gln Gly Val Gly Met Arg
    370                 375                 380

Gln Gln Phe Pro Val Glu Arg Lys Trp Ala Leu Gly Leu Gln Ser Arg
385                 390                 395                 400

Ala Gln Pro Arg Glu Ile Met Thr Glu Val Leu Lys Ala Leu Gln Glu
                405                 410                 415

Leu Asn Val Cys Trp Lys Lys Ile Gly His Tyr Asn Met Lys Cys Arg
            420                 425                 430

Trp Val Ala Gly Thr Ala Gly His His Glu Gly Met Ile Asn Asn Ser
        435                 440                 445

Leu His Ser Asn His Tyr Phe Gly Asn Asp Ser Gly Ile Ile Glu Asn
    450                 455                 460

Glu Ala Val Ser Lys Ser Asn Val Val Lys Phe Glu Val Gln Leu Tyr
465                 470                 475                 480

Lys Thr Arg Glu Glu Lys Tyr Leu Leu Asp Leu Gln Arg Val Gln Gly
                485                 490                 495

Pro Gln Phe Leu Phe Leu Asp Leu Cys Ala Ala Phe Leu Ser Gln Leu
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Arg Val Leu
515

<210> 17
<211> 1869
<212> DNA
<213> Glycine max

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ttatctctta ctggaagaca gactttgagg tagactcctt ataagtgcgc agaagttcaa 240
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accattggtg aaggtacatt tgcaaaggtg aaatttgcaa ggaactctga gacaggagag 360
cccgtggctc ttaaaattct tgacaaggag aaggtgctaa agcacaagat ggctgagcag 420
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cagcagctta taaatgctgt tgattattgc catagcaggg gtgtctacca cagagacctg 660
aagccagaaa atttgctatt agatacttat gggaacctta aagtttctga ttttggtttg 720
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aaaaaaaaa 1869

<210> 18
<211> 441
<212> PRT
<213> Glycine max

<400> 18
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Arg Thr Ile Gly Glu Gly Thr Phe Ala Lys Val Lys Phe Ala Arg Asn
20 25 30

Ser Glu Thr Gly Glu Pro Val Ala Leu Lys Ile Leu Asp Lys Glu Lys
35 40 45

Val Leu Lys His Lys Met Ala Glu Gln Ile Arg Arg Glu Val Ala Thr
50 55 60

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Met Lys Leu Ile Lys His Pro Asn Val Val Arg Leu Tyr Glu Val Met
 65                  70                  75                  80

Gly Ser Lys Thr Lys Ile Tyr Ile Val Leu Glu Phe Val Thr Gly Gly
                 85                  90                  95

Glu Leu Phe Asp Lys Ile Val Asn His Gly Arg Met Ser Glu Asn Glu
            100                 105                 110

Ala Arg Arg Tyr Phe Gln Gln Leu Ile Asn Ala Val Asp Tyr Cys His
        115                 120                 125

Ser Arg Gly Val Tyr His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu
    130                 135                 140

Asp Thr Tyr Gly Asn Leu Lys Val Ser Asp Phe Gly Leu Ser Ala Leu
145                 150                 155                 160

Ser Gln Gln Val Arg Asp Asp Gly Leu Leu His Thr Thr Cys Gly Thr
                165                 170                 175

Pro Asn Tyr Val Ala Pro Glu Val Leu Asn Asp Arg Gly Tyr Asp Gly
            180                 185                 190

Ala Thr Ala Asp Leu Trp Ser Cys Gly Val Ile Leu Phe Val Leu Val
        195                 200                 205

Ala Gly Tyr Leu Pro Phe Asp Asp Pro Asn Leu Met Asn Leu Tyr Lys
    210                 215                 220

Lys Ile Ser Ala Ala Glu Phe Thr Cys Pro Pro Trp Leu Ser Phe Thr
225                 230                 235                 240

Ala Arg Lys Leu Ile Thr Arg Ile Leu Asp Pro Asp Pro Thr Thr Arg
                245                 250                 255

Ile Thr Ile Pro Glu Ile Leu Asp Asp Glu Trp Phe Lys Lys Glu Tyr
            260                 265                 270

Lys Pro Pro Ile Phe Glu Glu Asn Gly Glu Ile Asn Leu Asp Asp Val
        275                 280                 285

Glu Ala Val Phe Lys Asp Ser Glu Glu His His Val Thr Glu Lys Lys
    290                 295                 300

Glu Glu Gln Pro Thr Ala Met Asn Ala Phe Glu Leu Ile Ser Met Ser
305                 310                 315                 320

Lys Gly Leu Asn Leu Glu Asn Leu Phe Asp Thr Glu Gln Gly Phe Lys
                325                 330                 335

Arg Glu Thr Arg Phe Thr Ser Lys Ser Pro Ala Asp Glu Ile Ile Asn
            340                 345                 350

Lys Ile Glu Glu Ala Ala Lys Pro Leu Gly Phe Asp Val Gln Lys Lys
        355                 360                 365

Asn Tyr Lys Met Arg Leu Ala Asn Val Lys Ala Gly Arg Lys Gly Asn
    370                 375                 380
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Leu Asn Val Ala Thr Glu Ile Phe Gln Val Ala Pro Ser Leu His Met
385                 390                 395                 400

Val Glu Val Arg Lys Ala Lys Gly Asp Thr Leu Glu Phe His Lys Phe
                405                 410                 415

Tyr Lys Lys Leu Ser Thr Ser Leu Asp Asp Val Val Trp Lys Thr Glu
            420                 425                 430

Asp Asp Met Gln Met Arg Glu Thr Lys
        435                 440
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<210> 19
<211> 817
<212> DNA
<213> Triticum aestivum

<400> 19

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gaacattagg tataggcaca tttggaaaag tgaggattgc agagcataag catacagggc 180
ataaagttgc tataaagatt ctgaaccgtc gtcaaatgag aactatggaa atggaggaga 240
aagcaaagag agagatcaag atattgaggt tgttcatcca ccctcatatc atccggcttt 300
atgaggtcat ttacacacct acagatatat ttgttgtgat ggaatattgc aagtatggtg 360
agctattcga ctgcattgtt gagaaagggc ggttacagga agatgaggct cgtcgaatct 420
tccagcagat tatatctggt gttgaatact gccacagaaa catggttgct catcgtgatc 480
taaagccaga gaacctgtta cttgattcca aatacaatgt gaaacttgcc gactttgggt 540
taagtaatgt catgcatgat ggccattttc tgaagactag ctgcgggagt ccaaactatg 600
ctgcaccaga ggttatctca ggtaaattat acgctggacc tgaggttgat gtttggagct 660
gcggggtgat actttatgct cttctttgtg gcactcttcc atttgatgat gacaatattc 720
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<210> 20
<211> 244
<212> PRT
<213> Triticum aestivum

<400> 20

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Met Glu Gly Asn Thr Arg Gly Gly Gly His Ser Asp Ala Leu Lys Asn
  1               5                  10                  15

Tyr Asn Val Gly Arg Thr Leu Gly Ile Gly Thr Phe Gly Lys Val Arg
             20                  25                  30

Ile Ala Glu His Lys His Thr Gly His Lys Val Ala Ile Lys Ile Leu
         35                  40                  45

Asn Arg Arg Gln Met Arg Thr Met Glu Met Glu Glu Lys Ala Lys Arg
     50                  55                  60

Glu Ile Lys Ile Leu Arg Leu Phe Ile His Pro His Ile Ile Arg Leu
 65                  70                  75                  80

Tyr Glu Val Ile Tyr Thr Pro Thr Asp Ile Phe Val Val Met Glu Tyr
                 85                  90                  95

Cys Lys Tyr Gly Glu Leu Phe Asp Cys Ile Val Glu Lys Gly Arg Leu
            100                 105                 110
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Gln Glu Asp Glu Ala Arg Arg Ile Phe Gln Gln Ile Ile Ser Gly Val
115 120 125

Glu Tyr Cys His Arg Asn Met Val Ala His Arg Asp Leu Lys Pro Glu
130 135 140

Asn Leu Leu Leu Asp Ser Lys Tyr Asn Val Lys Leu Ala Asp Phe Gly
145 150 155 160

Leu Ser Asn Val Met His Asp Gly His Phe Leu Lys Thr Ser Cys Gly
165 170 175

Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile Ser Gly Lys Leu Tyr Ala
180 185 190

Gly Pro Glu Val Asp Val Trp Ser Cys Gly Val Ile Leu Tyr Ala Leu
195 200 205

Leu Cys Gly Thr Leu Pro Phe Asp Asp Asp Asn Ile Pro Lys Leu Phe
210 215 220

Lys Lys Ile Lys Gly Gly Ile Tyr Ile Leu Pro Ser His Leu Ser Ala
225 230 235 240

Pro Ala Arg Asp

<210> 21
<211> 2006
<212> DNA
<213> Triticum aestivum

<400> 21
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tggccgtcaa gatccttaac cgccggaaaa tcaaaaacat ggagatggaa gagaaagtga 240
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tgatagaggc accagctgat atttatgtgg ttatggagta tgttaagtct ggtgaattgt 360
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cggaggttat atctggaaaa ctgtacgctg ggcctgaagt tgatgtatgg agctgcggtg 660
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gatttgacaa aaacctgctg gttgaatcaa ttcataatag attgcaaaat gaggcaacag 1020
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gtttacttgc atgtaatttt tactgtctgg gtctccagac cagaccacgt acacgaataa 1920
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<210> 22
<211> 523
<212> PRT
<213> Triticum aestivum

<400> 22

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Pro Arg Arg Arg Cys Arg Tyr Ala Ser Pro Arg Glu Ala Ser Pro Ala
  1               5                  10                  15

Ala Arg Trp Lys Met Glu Thr Gly Gly Lys Asp Gly Asn Pro Leu Lys
             20                  25                  30

Asn Tyr Arg Ile Gly Lys Thr Leu Gly Ile Gly Ser Phe Gly Lys Val
         35                  40                  45

Lys Ile Ala Glu His Ile Lys Thr Gly His Lys Val Ala Val Lys Ile
     50                  55                  60

Leu Asn Arg Arg Lys Ile Lys Asn Met Glu Met Glu Glu Lys Val Lys
 65                  70                  75                  80

Arg Glu Ile Lys Ile Leu Arg Leu Phe Met His Pro His Ile Ile Arg
                 85                  90                  95

Leu Tyr Glu Val Ile Glu Ala Pro Ala Asp Ile Tyr Val Val Met Glu
            100                 105                 110

Tyr Val Lys Ser Gly Glu Leu Phe Asp Tyr Ile Val Glu Lys Gly Arg
        115                 120                 125

Leu Gln Glu Glu Glu Ala Arg Arg Phe Phe Gln Gln Ile Ile Ser Gly
    130                 135                 140

Val Gln Tyr Cys His Arg Asn Met Val Val His Arg Asp Leu Lys Pro
145                 150                 155                 160

Glu Asn Leu Leu Leu Asp Asn Asn Cys Asp Val Lys Ile Ala Asp Phe
                165                 170                 175

Gly Leu Ser Asn Val Met Arg Asp Gly His Phe Leu Lys Thr Ser Cys
            180                 185                 190

Gly Ser Pro Asn Tyr Ala Ala Pro Glu Val Ile Ser Gly Lys Leu Tyr
        195                 200                 205

Ala Gly Pro Glu Val Asp Val Trp Ser Cys Gly Val Ile Leu Tyr Ala
    210                 215                 220

Leu Leu Cys Gly Thr Leu Pro Phe Asp Asp Glu Asn Ile Pro Asn Leu
225                 230                 235                 240
```

Phe Lys Lys Ile Lys Gly Gly Ile Tyr Thr Leu Pro Ser His Leu Ser
245 250 255

Gly Pro Ala Arg Asp Leu Ile Pro Arg Met Leu Val Val Asp Pro Met
260 265 270

Lys Arg Ile Thr Ile Arg Glu Ile Arg Glu His Pro Trp Phe Glu Ala
275 280 285

Gln Leu Pro Arg Tyr Leu Ala Val Pro Pro Pro Asp Thr Ala Gln Gln
290 295 300

Val Lys Lys Ile Asp Glu Glu Ser Leu Val Lys Val Ile Ser Leu Gly
305 310 315 320

Phe Asp Lys Asn Leu Leu Val Glu Ser Ile His Asn Arg Leu Gln Asn
325 330 335

Glu Ala Thr Val Ala Tyr Tyr Leu Phe Leu Asp Asn Lys Ser Arg Thr
340 345 350

Thr Thr Gly Tyr Leu Gly Ala Gly Tyr Gln Glu Ala Met Glu Ser Ser
355 360 365

Phe Ser Pro Ile Thr Pro Ser Glu Thr Gln Ser Pro Ala His Gly Asn
370 375 380

Arg Gln Gln Pro Tyr Met Glu Ser Pro Val Gly Leu Arg Pro His Phe
385 390 395 400

Pro Ala Asp Arg Lys Trp Ala Leu Gly Leu Gln Ser Arg Ala His Pro
405 410 415

Arg Glu Val Met Thr Glu Val Leu Lys Ala Leu Gln Glu Leu Asn Val
420 425 430

Tyr Trp Lys Lys Ile Gly His Tyr Asn Met Lys Cys Arg Trp Ser Pro
435 440 445

Pro Gly Phe Pro Gly Gln Glu Asn Met Asn His Thr Asn Tyr Asn Phe
450 455 460

Ser Ala Glu Pro Ile Glu Thr Asp Asp Leu Gly Asp Lys Leu Asn Leu
465 470 475 480

Ile Lys Phe Glu Leu Gln Leu Tyr Lys Thr Arg Asp Glu Lys Tyr Leu
485 490 495

Leu Asp Leu Gln Arg Ala Ser Gly Pro His Leu Leu Phe Leu Asp Leu
500 505 510

Cys Ala Ala Phe Leu Ala Gln Leu Arg Val Phe
515 520

<210> 23
<211> 512
<212> DNA
<213> Zea mays

<400> 23
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ggtgggcaag tacgaggtgg gacgcaccat cggggaaggc accttcgcca aggtcaagtt 180
cgcgcagaac accgagaccg gggagagcgt cgccatgaag gtgctcgacc gctcctccat 240
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gcatcccaat gtcgttaggc tacacgaggt tttggcaagc cggaagaaga tatttataat 360
tctggagttc atcactggcg gcgagctatt cgataaaatt attcgtcatg ggagactcag 420
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gaaaggagtc taccatcgag acttaaagcc tg 512

<210> 24
<211> 132
<212> PRT
<213> Zea mays

<400> 24
Arg Arg Val Gly Lys Tyr Glu Val Gly Arg Thr Ile Gly Glu Gly Thr
1 5 10 15

Phe Ala Lys Val Lys Phe Ala Gln Asn Thr Glu Thr Gly Glu Ser Val
20 25 30

Ala Met Lys Val Leu Asp Arg Ser Ser Ile Leu Lys Asn Lys Met Ala
35 40 45

Glu Gln Ile Lys Arg Glu Ile Ser Ile Met Lys Leu Val Arg His Pro
50 55 60

Asn Val Val Arg Leu His Glu Val Leu Ala Ser Arg Lys Lys Ile Phe
65 70 75 80

Ile Ile Leu Glu Phe Ile Thr Gly Gly Glu Leu Phe Asp Lys Ile Ile
85 90 95

Arg His Gly Arg Leu Ser Glu Ala Asp Ala Arg Arg Tyr Phe Gln Gln
100 105 110

Leu Ile Asp Gly Val Asp Phe Cys His Lys Lys Gly Val Tyr His Arg
115 120 125

Asp Leu Lys Pro
130

<210> 25
<211> 552
<212> DNA
<213> Glycine max

<220>
<221> unsure
<222> (385)

<400> 25
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ttccactgca gaatttcagt ttattcttat ctagctcaat tctggttgtg ggtttatctc 180
ttactggaag acagactttg aggtagactc cttataagtg cgcagaagtt caagtgtaga 240
gaatgagtca gcctaagatt aaacgccgag ttggtaaata cgaggtgggg aggaccattg 300
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tcttaaaatt cttgacaagg agaangtgct aaagcacaag atggctgagc agatcaggag 420
agaagtagct acaatgaaac taatcaagca tccaaatgtt gttcgattgt atgaagtcat 480
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gtaaccatgg aa 552

<210> 26
<211> 77
<212> PRT
<213> Glycine max

<220>
<221> UNSURE
<222> (39)

<400> 26
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Lys Val Lys Phe Ala Arg Asn Ser Glu Thr Gly Glu Pro Trp Leu Leu
20 25 30

Lys Phe Leu Thr Arg Arg Xaa Val Leu Lys His Lys Met Ala Glu Gln
35 40 45

Ile Arg Arg Glu Val Ala Thr Met Lys Leu Ile Lys His Pro Asn Val
50 55 60

Val Arg Leu Tyr Glu Val Met Gly Ser Lys Thr Asn Ile
65 70 75

<210> 27
<211> 391
<212> DNA
<213> Triticum aestivum

<220>
<221> unsure
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tggccgtcaa gatccttaac cgccggcaaa tcaaaaacat ggcgatggaa gagaangtgn 240
caagagagat caagatatta agattattca tgcacccaca tatcatccgc ctttatnaag 300
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<210> 28
<211> 85
<212> PRT
<213> Triticum aestivum

<220>
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<222> (29)

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<220>
<221> UNSURE
<222> (82)

<400> 28

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Leu Lys Asn Tyr Arg Ile Gly Lys Thr Leu Gly Ile Gly Ser Phe Gly
  1               5                  10                  15

Lys Val Lys Ile Ala Glu His Ile Lys Thr Gly His Xaa Val Ala Val
             20                  25                  30

Lys Ile Leu Asn Arg Arg Gln Ile Lys Asn Met Ala Met Glu Glu Xaa
         35                  40                  45

Val Xaa Arg Glu Ile Lys Ile Leu Arg Leu Phe Met His Pro His Ile
     50                  55                  60

Ile Arg Leu Tyr Xaa Val Ile Glu Ala Pro Xaa Asp Ile Tyr Val Xaa
 65                  70                  75                  80

Met Xaa Tyr Val Lys
                85
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